# BICYCLE GEARS - VELOCITY RATIO
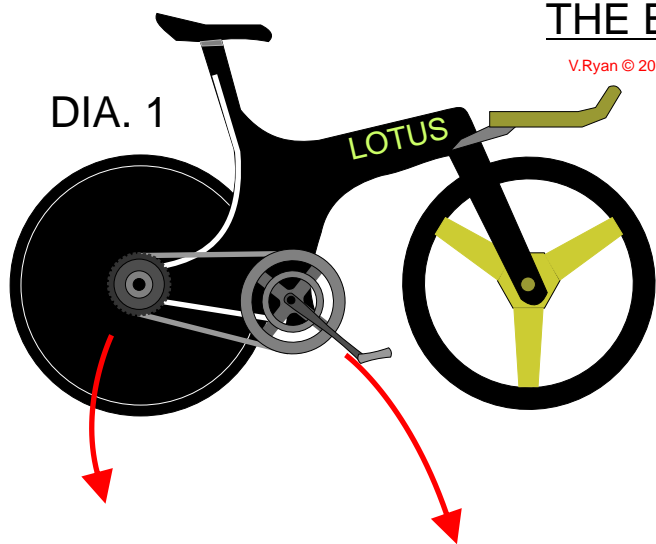
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# W.A.T.T.



## World Association of Technology Teachers

This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

# THE BASICS - GEARS

DIA. 1

LOTUS

1. The racing bicycle seen in DIA. 1 has a set of gears. What advantage does it have over bicycles with one fixed gear?

_____

_____

_____

_____

2. Add the labels printed below to their correct places on DIA. 2.

DIA. 2
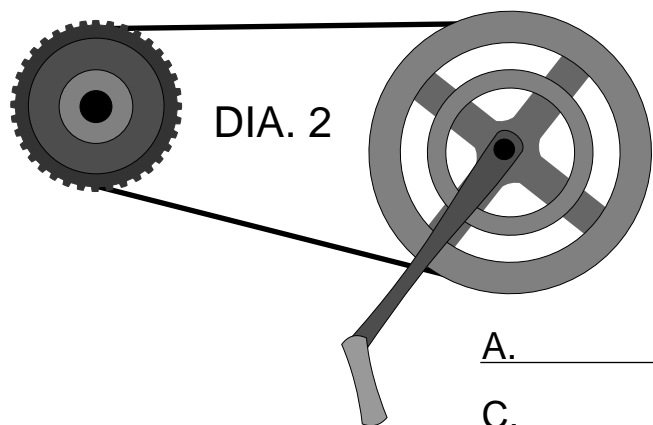
PEDAL GEAR            SPROCKET

DRIVEN                      DRIVER
GEAR WHEEL            GEAR WHEEL

3. Name four other machines that use gears?

A._____    B._____

C._____    D._____

4. Most people have experienced cycling up a hill. The steeper the hill gets the more difficult it is to pedal. Normally a cyclist changes gears to make it easier.  Explain how the gear system on a bicycle makes it easier, although slower to cycle up a hill.

_____

_____

_____

5. What will happen if a cyclist going up a hill changes gear from a larger to a smaller sprocket gear wheel? Will it be easier or harder to pedal?

_____

6. The diagram drawn opposite shows the gear arrangement of a bicycle.  If the pedal gear revolves once how many times will the sprocket gear revolve? Complete the formula and calculation below.

SPROCKET
30 TEETH

PEDAL GEAR
60 TEETH

DRIVEN
GEAR WHEEL

DRIVER
GEAR WHEEL
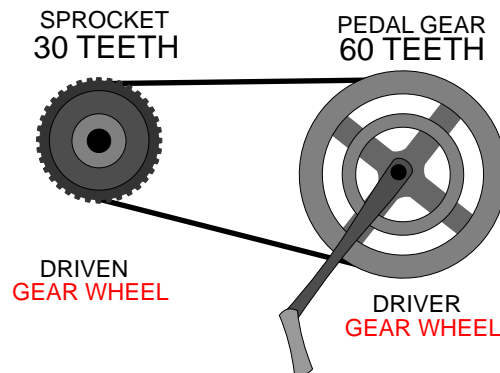
$$\underline{\text{NUMBER OF TEETH ON PEDAL GEAR}} = \frac{\underline{\phantom{xxxxxxxx}}}{\text{30 TEETH}} =$$

The gear ratio is :            :

PEDAL   SPROCKET
GEAR      GEAR